Before the
Federal Communications Commission
Washington, DC 20554

In the matter of	)	
	)	
Mitigation of Orbit Debris	)	IB Docket No. 02-54
	)	
	)	
	)	

To: The Commission

REPLY COMMENTS OF THE RADIO AMATEUR SATELLITE CORPORATION

1. The Radio Amateur Satellite Corporation ("AMSAT®"), respectfully submits these Reply Comments in response to the Commission's Notice of Proposed Rule Making ("the NPRM"), IB Docket No. 02-54, released March 18, 2002, and published in the Federal Register on May 3, 2002. Information on our organization and our projects may be found at http://www.amsat.org.

2. In its Comments[1], ORBCOMM points out that orbital debris mitigation policy is a very complex matter that requires further study, especially as it applies to non-geostationary satellites. It maintains that there are too many issues, and too many interactions between them, that require further study. ORBCOMM advocates a Negotiated Rulemaking or an Industry Advisory Committee as a far more speedy and efficient manner of dealing with the subject. AMSAT agrees that the issues involved are highly complex and important to the future of the utilization of space, both by commercial and non-commercial stakeholders, and there is not yet sufficient information to adopt binding rules at this time. A Negotiated Rulemaking or Industry Advisory Committee, as suggested by ORBCOMM, might be useful ways of gathering that information and determining what, if any, Commission rules on this subject would be in the public interest. Should the Commission adopt either of these approaches, AMSAT would be most interested in participating.

[1] Comments of ORBCOMM LLC to the Commission dated July 17, 2002 in IB Docket No. 02-54.

3. Alternatively, the Commission might opt to replace the present Notice of Proposed Rulemaking and issue a Notice of Inquiry as a way of soliciting the necessary information.

4. Arianespace, in its Comments[2], points out that extensive guidelines and standards relating to mitigation of space debris are under development by international groups. The Inter-Agency Space Debris Coordination Committee (IADC), on which the United States is represented by NASA, has issued draft guidelines,[3] and the European Space Debris Mitigation Standard Working Group has issued a draft of a European Standard.[4] Arianespace maintains that the consensus guidelines developed by these groups should be sufficient without requiring additional regulation by the Commission. AMSAT generally agrees. Moreover, if the eventual product of these groups' deliberations is generally adopted as policy by the world's space agencies and satellite-launching organizations, as seems likely, that could obviate the need for separate rules under the Communications Act, since the agencies themselves would enforce such policies, e.g., through launch contracts, selection processes, etc. Indeed, Arianespace argues that such rules could turn out to be redundant at best and conflicting at worst. In AMSAT's view, these considerations argue further for gathering more information before proceeding with the adoption of rules governing orbital debris mitigation.

5. Telesat Canada, in its Comments[5], says that its experience has been that the whole satellite operator community takes the orbital debris issue very seriously and works cooperatively with other operators and that any regulations should be addressed in the appropriate multilateral forums, such as the United Nations Committee on Peaceful Uses of Outer Space or the ITU. AMSAT agrees, noting that IADC is already far along on such a process independently of this rulemaking

[2] Comments of Arianespace to the Commission dated July 17, 2002 in IB Docket No. 02-54.
[3] *Draft IADC Space Debris Mitigation Guidelines*, 10 April 2002, by the Inter-Agency Space Debris Coordination Committee.
[4] *European Space Debris Safety and Mitigation Standard*, 18 February 2002 draft by the European Debris Mitigation Standard Working Group.
[5] Telesat Canada's Comments to the Commission dated July 17, 2002 in IB Docket No. 02-54.

proceeding. AMSAT urges that commercial and not-for-profit satellite stakeholders, including the amateur radio community, be involved from now on.

6. PanAmSat believes regulations are unnecessary[6] and that the voluntary efforts of industry, along with guidelines developed by the ITU and NASA are sufficient to address debris mitigation issues, without the need for Commission regulations. There have been no problems under the current voluntary procedures and the satellite industry has every incentive to address debris mitigation and the risk of collisions without regulatory mandates. AMSAT urges the Commission to coordinate its efforts with these bodies, including satellite stakeholders as discussed above, through one of the aforementioned mechanisms.

7. The Satellite Industry Association (SIA)[7] similarly feels that minimal regulation should be adopted by the Commission because the self-interest of satellite operators leads them to practice orbital debris mitigation techniques in every phase of a satellite's life. This point was also made by AMSAT in our Comments on the NPRM, particularly with regard to any requirements for analysis which might be imposed with respect to accidental explosions.

8. SIA urges that the Commission impose the same rules that it may decide are advisable for U.S. licensed satellites to non-U.S. spacecraft serving users in this country. While such an interpretation may be appropriate for commercial satellites, they certainly are not for satellites operating in the amateur-satellite service. AMSAT made this point in our Comments on this NPRM and feels compelled, in light of the SIA statement, to reiterate it here. We note that the NPRM does not propose that such measures be taken under Part 97 and urge the Commission to retain that exception.

9. ORBCOMM LLC, in its Comments states that "it is eminently clear that further study is required to gain a more adequate understanding [of] this most crucial interplay between debris

[6] PanAmsat's Comments to the Commission dated July 17, 2002 in IB Docket No. 02-54.
[7] Comments of the Satellite Industry Association to the Commission dated July 17, 2002 in IB Docket No. 02-54.

mitigation efficacy and commercial practicality for commercial satellite systems, particularly non-geostationary constellations." AMSAT contends that the same situation applies to non-commercial satellite systems. Again, this indicates the desirability of employing a Negotiated Rulemaking, Industry Advisory Committee or issuing a Notice of Inquiry in this matter.

10. Telesat Canada makes the same statement which AMSAT made in our Comments with regard to accidental explosions. There is already sufficient incentive for a satellite builder to make every effort to prevent such an occurrence to render unnecessary any Commission-imposed requirements to this end.

11. AON Space, citing the high cost and lack of sufficient funds in the insurance industry, argues against imposing any insurance requirements on satellite operators. AMSAT wholeheartedly agrees with this contention and urges the Commission not to impose any such requirements, particularly in the case of satellites meant for the amateur-satellite service.

12. AMSAT agrees with Nickolaus E. Leggett, N3NL, in his assessment that amateur satellites already operating in orbits deemed to be "disposal" or "junk" orbits (orbits not considered commercially useable) not be subject to any further debris mitigation requirements. Leggett's Comments are especially relevant because, as the holder of an amateur license, he is a private individual. Under the ITU Radio Regulations as well as the Commission's Rules, only private individuals are eligible to hold such licenses and thus, to be the licensees responsible for complying with whatever rules the Commission may adopt in this proceeding affecting the amateur-satellite service. AMSAT believes that the proposed rules need to be re-thought with such individuals in mind. Are private individuals "small entities" as that term is used in the NPRM? Is it reasonable to subject them to the same requirements as large entities?

13. Other serious issues raised by commenters appear to require additional consideration as well. The draft European Standard referred to earlier includes a provision under which waivers from space debris requirements can be granted "on the basis of the impact on the product,"[8] while the draft IADC Guidelines refer repeatedly to the need to consider the cost-effectiveness of any debris mitigation measures to be taken. Particularly for spacecraft without propulsion systems or hazardous components, should there be a maximum size or mass below which the need for some or all space debris requirements is regarded as *de minimis*? If such spacecraft are required to be placed in orbits from which they will decay into the atmosphere within a particular time (IADC proposes 25 years after their missions have been completed), that could have significantly adverse effects on their missions (or, in European Standard terms, their "products"). For example, the lower the orbit of a small amateur communications satellite, the smaller its usable footprint and the shorter the time interval during which it would be visible from any user's location. In view of the very limited financial resources available to support amateur radio satellite projects, achieving the longest possible useful life for each is economically essential, and a low-altitude orbit would be counterproductive in this respect. AMSAT urges that these and other relevant issues receive further study, with input from the stakeholders through one of the types of proceedings mentioned earlier.

14. In conclusion, AMSAT believes that before the Commission proceeds further with regulations dealing with the mitigation of space debris, further study is needed because of the complexity of the matter and the economic impact regulations might have on future satellites. It is recommended that the Commission undertake this through one of the proceeding types discussed above, in which AMSAT and the other stakeholders involved in the building and launching of satellites should be permitted to take a more participatory, active role in the process.

[8] *European Space Debris Safety and Mitigation Standard*, 18 February 2002 draft, Section 5.2.

RESPECTFULLY SUBMITTED,

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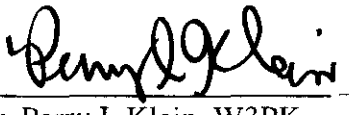
By  Date August 15, 2002

Dr. Perry I. Klein, W3PK
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CERTIFICATE OF SERVICE

I, Perry I. Klein, do hereby certify that true and correct copies of the foregoing document, "Reply Comments of the Radio Amateur Satellite Corporation," filed in IB Docket No. 02-54 on behalf of the Radio Amateur Satellite Corporation were served by First Class United States Mail, postage prepaid, this 15th day of August 2002, on the following:

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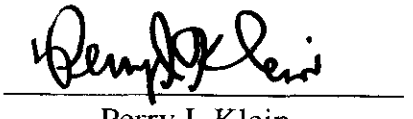

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